

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for the chromatographic separation of a nucleic acid mixture wherein plasmid DNA is separated from other components of the mixture, especially including other nucleic acids, characterised in that comprising the steps:

(a) as appropriate the nucleic acid mixture is adjusted with one or more alkali salts and/or alkaline earth salts in aqueous solution to a conductance that is equivalent to a conductance of 70 mS to 95 mS at a pH of 4.8 to 5.4 at a temperature of 20°C, and

(b) the nucleic acid mixture is brought into contact with a chromatographic stationary phase,

(c) the stationary phase is then washed at least once with a solution comprising an alkali salt in a concentration range of 900 mM to 1800 mM based on a pH of 7 to 7.4 and/or an alkaline earth salt in a concentration range of 100 mM to 240 mM based on a pH of 7 to 7.4, and

(d) the plasmid DNA bound to the chromatographic stationary phase is subsequently eluted with a solution comprising an alkali salt in a concentration of 1300 mM or higher based on a pH of 7 to 7.4 and/or an alkaline earth salt in a concentration of 270 mM or higher based on a pH of 7 to 7.4,

wherein the chromatographic stationary phase is obtainable by reaction of a material selected from the group consisting of silica gel, diatomaceous earth, glass, aluminium oxide, titanium oxide, zirconium oxide, hydroxy apatite, dextran, agarose, acrylamide, polystyrene resin and copolymers thereof in a first step with a silanisation reagent of the general structure I



wherein

R¹ is an alkoxy residue with 1 to 10 C atoms, especially -OCH₃, -OC₂H₅ or -OC₃H₇, or a halogen atom or a dialkylamino group with identical or different alkyl residues with 1 to 6 C atoms;

R² and R³ independently of one another are hydrocarbon residues with 1 to 10 C atoms or an alkoxy residue with 1 to 10 C atoms or a halogen atom or an alkyl residue with 4 to 20 carbon atoms interrupted by at least one oxygen atom or amino groups, wherein R² and R³ are each optionally substituted once or several times by halogen, cyano, nitro, amino, monoalkylamino, dialkylamino, hydroxy or aryl;

R⁴ is a hydrocarbon chain with 1 to 20 C atoms or an alkyl residue interrupted by at least one oxygen atom or amino group, whereby and optionally is substituted one or several times with halogen, cyano, nitro, amino, monoalkylamino, dialkylamino, alkoxy, hydroxy, aryl and/or epoxy, followed by a second step wherein the stationary phase modified in the first step is reacted with a reagent of the general structure II



wherein

X is an amino-, hydroxy-, epoxy group or a halogen atom,

R is a hydrocarbon chain with 2 to 20 C atoms or an alkyl residue interrupted by at least one oxygen atom or amino group, where R is optionally substituted once or several times by halogen, cyano, nitro, amino, monoalkylamino, dialkylamino, alkoxy, hydroxy, aryl and/or epoxy,

Y is a hydrocarbon residue with anion exchange forming functional groups with 1 to 10 C atoms optionally substituted once or several times by amino-, monoalkylamino-, dialkylamino-, trialkylammonium.

2. (Currently amended) The method ~~as described in~~of claim 1, ~~characterised in that~~
wherein the alkali salt is an alkali halide and the alkaline earth salt is an alkaline earth halide.

3. (Currently amended) The method ~~as described in~~of claim 2, ~~characterised in that~~
wherein the alkali halide is NaCl, KCl, CsCl and/or LiCl and the alkaline earth halide is CaCl₂.

4. (Currently amended) The method ~~as described in~~of claim 1, ~~characterised in that~~
wherein the nucleic acid mixture is adjusted with KCl to a conductance ~~that is equivalent to a~~
~~conductance of~~ 70 mS to 85 mS at a pH of 4.8 to 5.4 and a temperature of 20°C.

5. (Currently amended) The method ~~as described in~~of claim 4, ~~characterised in that~~
wherein the nucleic acid mixture is adjusted with KCl to a conductance that corresponds to a
conductance of 70 mS to 80 mS at a pH of 4.8 to 5.4 and a temperature of 20°C.

6. (Currently amended) The method ~~as described in~~of claim 1, ~~characterised in that~~
wherein the nucleic acid mixture is adjusted with NaCl to a conductance that corresponds to a
conductance of 70 mS to 95 mS at a pH of 4.8 to 5.4 and a temperature of 20°C.

7. (Currently Amended) The method ~~as described in~~ of claim 6, ~~characterised in that~~ wherein the nucleic acid mixture is adjusted with NaCl to a conductance that corresponds to a conductance of 85 mS to 95 mS at a pH of 4.8 to 5.4 and a temperature of 20°C.

8. (Currently Amended) The method ~~according to~~ of claim 1, ~~characterised in that~~ wherein the washing ~~step/s from~~ in step (c) ~~of claim 1 is/are~~ carried out with a solution comprising KCl in a concentration range of 1100 mM to 1800 mM based on a pH of 7 to 7.4.

9. (Currently Amended) The method ~~according to~~ of claim 8, ~~characterised in that~~ wherein the washing ~~step/s from~~ in step (c) ~~of claim 1 is/are~~ carried out with a solution comprising KCl in a concentration range of 1300 mM to 1700 mM relating to a pH of 7 to 7.4.

10. (Currently Amended) The method ~~according to~~ of claim 1, ~~characterised in that~~ wherein the washing ~~step/s from~~ in step (c) ~~of claim 1 is/are~~ carried out with a solution comprising KCl in a concentration range of 950 mM to 1200 mM based on a pH of 7 to 7.4.

11. (Currently Amended) The method ~~according to~~ of claim 10, ~~characterised in that~~ wherein the washing ~~step/s from~~ in step (c) ~~of claim 1 is/are~~ carried out with a solution comprising NaCl in a concentration range of 1100 mM to 1150 mM based on a pH of 7 to 7.4.

12. (Currently Amended) The method ~~as described in~~ of claim 1, ~~characterised in that~~ wherein the elution step from step (d) ~~from claim 1 is~~ carried out with a solution comprising KCl in a concentration of 1900 mM or higher based on a pH of 7 to 7.4.

13. (Currently Amended) The method as ~~described in~~ of claim 1, ~~characterised in that~~ wherein the elution step from step (d) ~~from claim 1~~ is carried out with a solution comprising NaCl in a concentration of 1300 mM or higher based on a pH of 7 to 7.4.

14. (Currently Amended) The method as ~~described in~~ of claim 1, ~~characterised in that~~ wherein the chromatographic stationary phase is an anion exchanger.

Claims 15 and 16 (Cancelled)

17. (Original) The method as described in claim 1, characterised in that the method is carried out at room temperature.

18. (Currently Amended) The method as ~~described in~~ of claim 1, ~~characterised in that~~ wherein at least in step (c) ~~of claim 1~~ KCl is used as the salt.

19. (Currently Amended) The method as ~~described in~~ of claim 1, ~~characterised in that~~ wherein mixtures of different alkali salts and/or alkaline earth salts ~~can also be~~ are used in the steps (a), (c) and (d) of claim 1.

20. (Currently Amended) The method as ~~described in~~ of claim 1, ~~characterised in that~~ wherein the nucleic acid mixture is a cleared lysate from ~~prokaryotic~~ prokaryotic cells.

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Claims 21 and 22 (Cancelled).